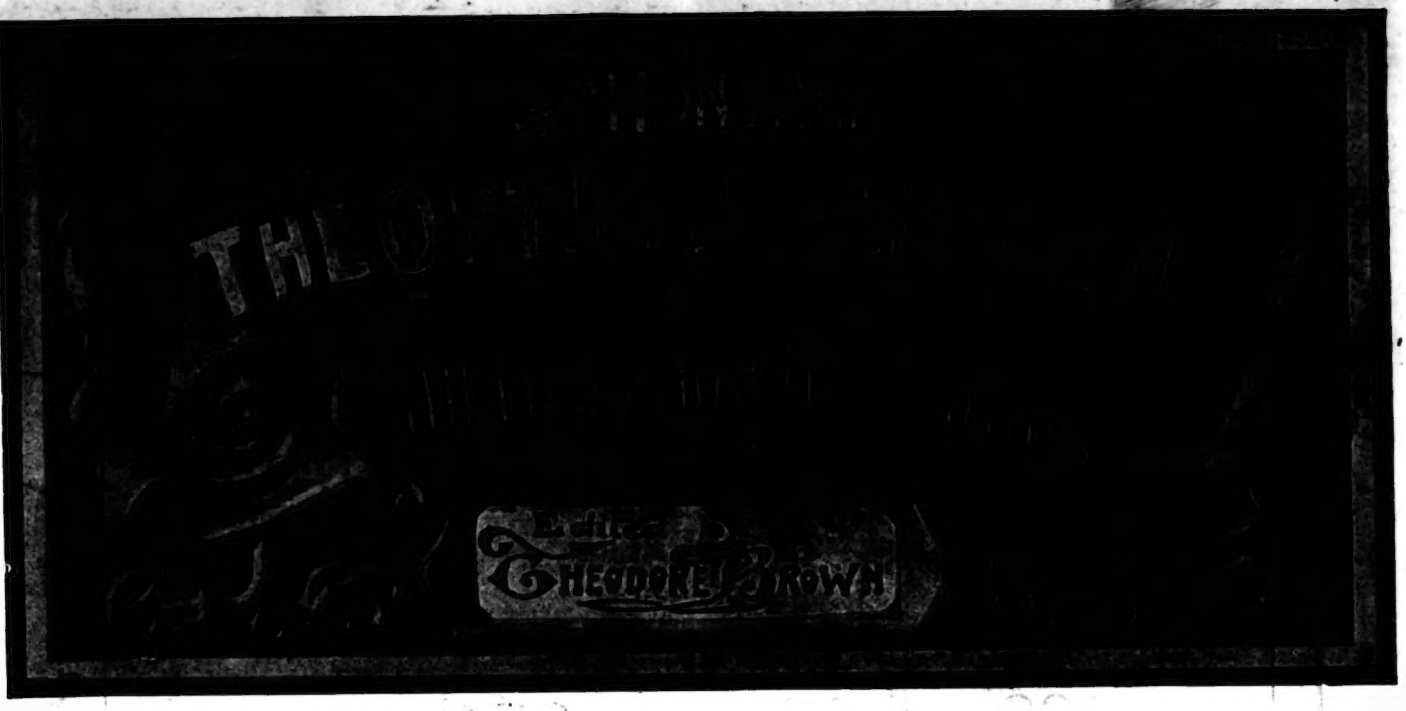

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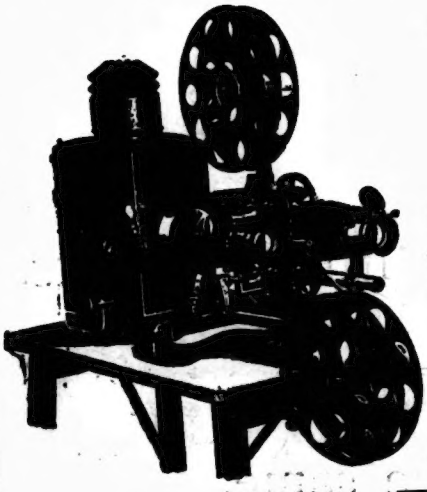

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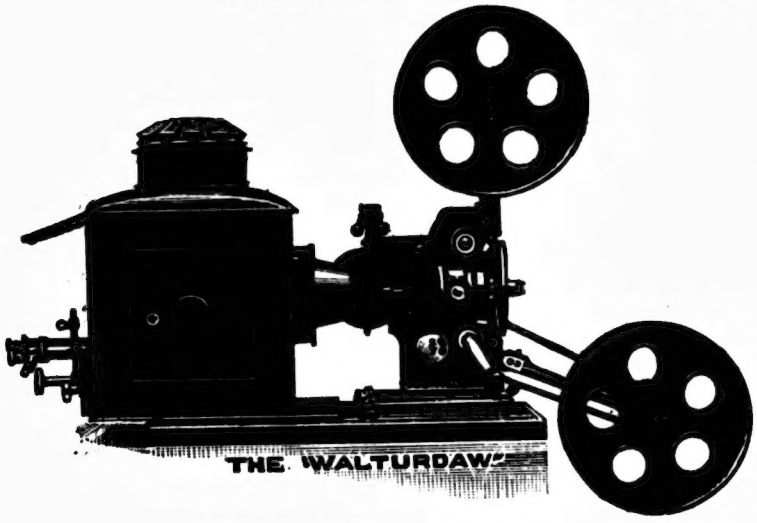

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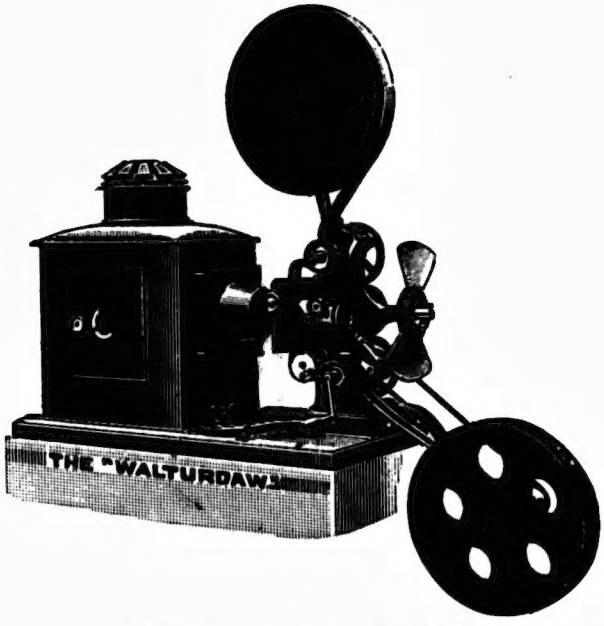

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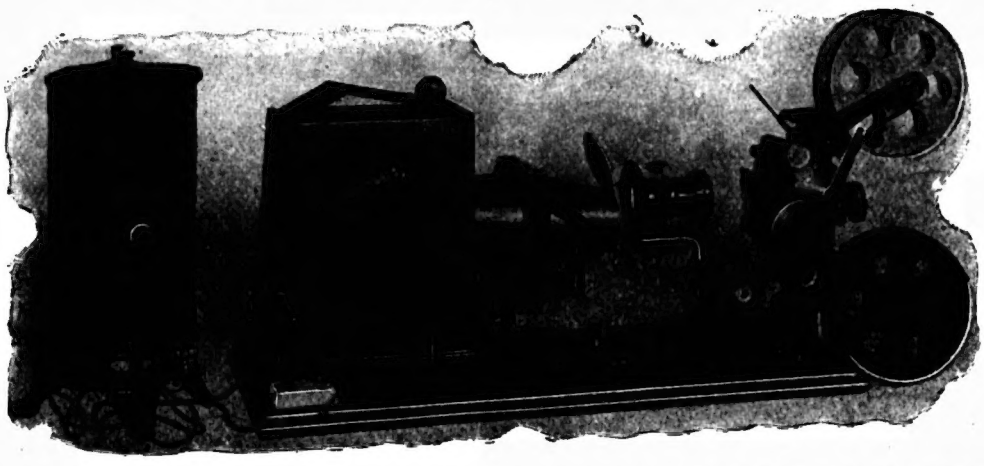

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ADMIRERS of cloud and sea in their wildest and most picturesque aspects will have found much to interest them in the Exhibition of Marine Photography and Wave Studies by Mr. F. G. Mortimer, F.R.P.S., which has been open at the Royal Photographic Society's house in Russell Square during the past month. Fifty-six photographic prints, some of them of very large size, and all appropriately mounted in dark wood frames, have occupied the walls of two large rooms, and have presented almost every variety of stormy sea, rugged rock, and cloudy sky, the critical moment for securing the desired effect having been selected and made use of with consummate skill, and in a manner that makes the spectator wonder from what point of view many of them can have been taken, since no foothold or resting place either for the artist or his camera seem to suggest themselves, and in some instances the forms of wave seen in mid ocean, rather than on or near the coast, have been secured.

SUCH subjects as "The Advance Guard of a South-Wester," "Sea Horses," "Great Ocean! Strongest of Creation's Sons," "An Atlantic Roller," "The White Squall," "The Majestic Main," and others with with equally suggestive titles, seem to savour of mid ocean, while "A Wind Sea," by far the largest, and in some respects the most imposing picture of the entire collection, presents some of the boldest and most expressive forms of cloud and wave of which the mind can conceive.

"AFTER the Storm" and some few others remind us of the oily and still unsettled waters gradually passing from a state of violent disturbance to that of rest and calm; while "Solitude" with its vast stretch of sea below and sky above, with a single sail far away on the horizon, justifies its title to the full. The whole collection formed a notable example of artistic and technical skill in the photographic art, presented in the most tasteful and effective form by the mounting and hanging of the pictures; the only difficulty in observing them to the best advantage arising from the strong reflections of the windows of the rooms and other objects from the surface of the glass, which protected many of the finest pictures; unavoidable doubtless, though much to be regretted.

THE idea, says the *Oswestry Advertiser*, of snapshotting people coming out of the church on Sunday morning, and then throwing the scene on a screen by means of a cinematograph apparatus, to amuse the folks at the recent May Fair at Craven Arms, is certainly a novel one; but it has its disadvantages. If we are going to be subjected to this kind of detective system of espionage all through the common round and trivial task of our daily lives, some of us will have to mind our p's and q's! I have just been thinking of some of the things that might happen:—

If you are walking down a lane,
  Your right arm gently clasping
The dainty waist of Betsy Jane,
  It would be rather rasping
To hear some rude boys shout, with laughter,
  "Hi! they've cinematographed yer."

One certainly wonders where the inspiration is obtained for the curious articles on living pictures which frequently appear in the columns of the *Daily Mail*. The last that has come to our notice is headed "Alpine 'Accidents,'" and we give a few interesting passages culled from its columns. We only regret we cannot reproduce the weird illustrations that accompany the article. The writer says: "That some 'tragedies' are rehearsed will be news to many. To-day 'accidents' due to avalanches, ice-glazed cornices, falling rocks and breaking snow-bridges are planned deliberately. 'Victims' intentionally throw themselves over precipices, fall down unfathomed crevasses, and allow themselves to slide down fearsome-looking ice-slopes. These men are not would-be suicides. They do not wish to lie at the bottom of a one thousand foot precipice with shattered bones. They rehearse these Alpine 'fatalities' for the benefit of the cinematograph. . . .

"The explanation is simple. The pictures are not 'faked.' The man actually did fall over the precipice; but—it was a small precipice. Probably the fall was not more than fifteen feet, and a spot had been chosen where the 'victim' would find a snow bed of eider-down softness at the bottom. He might completely disappear from sight in this dry, powdery snow, but would quickly be helped out, none the worse for his Alpine catastrophe, and quite ready for another performance as soon as the cinematographer could recharge his instrument. But there are many others. For instance, one of the greatest dangers of climbing is that of falling stones. . . .

"Now the operator who wishes to show an accident from this cause has many difficulties to contend with. It is obviously impossible for him to accompany a party of climbers to a dangerous chimney and wait until nature sends the rock. Nature never does send the rock when it is expected. . . . But the cinematograph operator is accustomed to overcome difficulties. He searches the lower heights for a small chimney. Then he collects his climbing party, and looks for a natural 'royal box' from which his camera can observe the rehearsal in comfort. One man is stationed at the top of the chimney, where he collects a number of loose rocks and poises them on the edge of a ledge. One or two of the big stones are tipped over so that the climbers can see where they fall and how to avoid them, and then all is ready for the performance. The climbers move in single file between the black walls; the cinematograph begins to whirr; the mock Jove tips over one of his rocky thunderbolts — whizz — crash — it flashes by the climbers, another scene has been added to the répertoire of the stage manager of Alpine accidents."

The late Mr. T. C. Hepworth.

We regret to report the death of Mr. T. C. Hepworth, which took place a few days ago. Mr. Hepworth's name is familiar to most lanternists. He was a journalist and lecturer on matters pertaining to the lantern. Mr. Hepworth was associated with photography in a number of ways. For some years he was Editor and proprietor of the *Photographic News*. In Cassell's *Popular Science* will be found a number of articles from his pen, especially may be mentioned the one on "The Magic, or Optical Lantern," which treats on the lantern from its primitive conceptions to the modern day apparatus which has reached so high a standard of excellence. "The Book of the Lantern" is another production of Mr. Hepworth's, which served a very useful purpose.

THE recent visit of Japanese Royalty to the garden party at the Botanic Gardens, was the occasion when, according to several of the daily papers, the camera man made his presence felt in a most objectionable way. Whether the reproof should be divided to the operators of the cinematographs, or more especially to the ordinary snap-shotter, is a question we are not prepared to answer; the incident however should serve as a reminder to manufacturers, of the desiratum, still staring them in the face; of a *silent machine*. But a silent machine is not the only thing necessary; it is also evident that methods of detective operating are wanted. Complete success can only be anticipated when the camera works without a sound, and also from a position least suspected by the subject of special interest.

IF *flicker* is the bug-bear in projection; the *click* of the camera, is equally objectionable in taking of the pictures, and the latter defect is probably the more fatal to results. Electricity as a motive power for projection, has already been adopted! Why not apply this power to the operation of the camera? It would not wholly solve the problem of a noiseless machine; but it would at least afford one step towards avoiding detection, thus—the camera may be fixed for the time being to the branch of a tree, when the view point is to be a stationary one, or to the staff of a flag or banner, when the view point is to be progressive. With the camera in this elevated position, the operator standing amongst, or moving with the crowd, becomes to all intents and purposes, a casual onlooker, but in reality he is the man who takes the photographs. The switch in his hand, gives him by electrical communication, absolute control of his distant camera. He has previously arranged the apparatus, for vantage point of view; and now it only remains for him, at the critical selections of time, to switch on, and take the pictures.

SEVERAL letters have reached us on the question of Religious Films for use at Pleasant Sunday Afternoons and other meetings in connection with churches and chapels, and we have been asked to compile a list of suitable subjects. We are only too pleased to assist readers, and have made arrangements to publish this list. We have also been asked for the name of a firm who undertakes to give Sunday shows of religious pictures. We do not know of one which makes a speciality of this particular work, but doubtless any firm will make up a suitable programme if the requirements are stated. It is a delicate matter to recommend one trading concern more than another—our advertisement pages are for the firms to advertise their qualifications, and our readers should use their own judgment after reading the advertisements.

NOTICES.

Editor—Theodore Brown. Readers are requested to note that on and after May 15th, the Editorial Office will be at Westcot, Drummond Rd., Boscombe, Bournemouth.

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Illustrations.—We cannot undertake to re-draw or work up rough sketches for publication. When it is possible and desirable to use illustrations, use good photographs (original, of course) or pen drawings in good ink. The size of drawings should be two-thirds larger than size published. Bold lines reproduce better than fine. When illustrating an article with a number of diagrams, mark in order Fig. 1., Fig. 2. and so on, not close to the drawings and in black, but in light blue pencil on the margin and face side. Indicate on M.S. where these figures are to be inserted. Send all drawings or photographs flat and unfolded. We do not guarantee to return M.S. or Illustrations, unless postage is prepaid; and we do not hold ourselves responsible for their safe return.

Queries.

Readers are requested to write each question as concisely as possible on one side of a separate sheet. Name and address to be given for reference. We are not responsible for the opinion expressed. Readers are invited to reply to Queries, and should state number and title of same.

27 Can any of your readers tell me how to go to work under the following conditions? I hold an official position in West Africa, and frequently have to impress the tribes I visit with the marvels of Western invention. I have used the phonograph with excellent results, but find, after once or twice hearing it, the natives look upon it as quite an ordinary matter. The Pagan tribes of this North-west province used to run away on first hearing it, whilst the Mohammedans, Hansas, and Fularis would as a rule listen stoically, and maintain an impenetrable reserve. After hearing once or twice they seem more or less indifferent, and only become animated over the show when a record with laughs or imitations of animals is put on. I want to be able to introduce the living picture to them, and a friend in England told me you would give the information. I know nothing of the lantern or how to work it, in fact, have only seen the moving pictures three times when on furlough. I want you to let me know what is necessary for a small show, and you must remember freight is expensive, and we have neither gas or electric light. I would not mind spending £40. Can it be done and how? I have enclosed 5/- as subscription to your paper, if too little please let me know, and I will send balance.—J. C. STEWART, Gomba Borgu.

ANSWERS.

23 Astronomical Slides.

In reply to "Astronomy," the Woodbury Series of Astronomical Slides, published by Eyre & Spottiswood, include numerous excellent photographs of solar and lunar phenomena, star groups, nebulae, etc., taken at the Lick Observatory in California and elsewhere. These and many other subjects of a similar character may be obtained singly or otherwise from any of the leading opticians and dealers in lantern slides, such as Messrs. Newton & Co., 3, Fleet Street, London, E.C.; Messrs. Watson & Sons, Holborn; Mr. J. H. Steward, Strand, etc.—W. H. GOLDING.

23 Astronomical Slides.

I beg to say I think Morley & Cooper, 271, Upper Street, Islington, N., would be a likely firm to apply to.—C. LARKING.

25 Flickerless Animated Projections.

Mr. Barber will find particulars of a flickerless projector, illustrated and described, on pages 11 and 12 of the *Photographic Dealer* for January, 1898. It is an apparatus by the Prestwich Manufacturing Co., and consists in a duplicate system, wherein the first picture is allowed to remain till supplemented by a second from a second optical system; the light being cut off from the objectives alternately.—S. SAUNDERS.

[See also article on the subject in present issue.—ED.]

24 Opaque Lanterns.

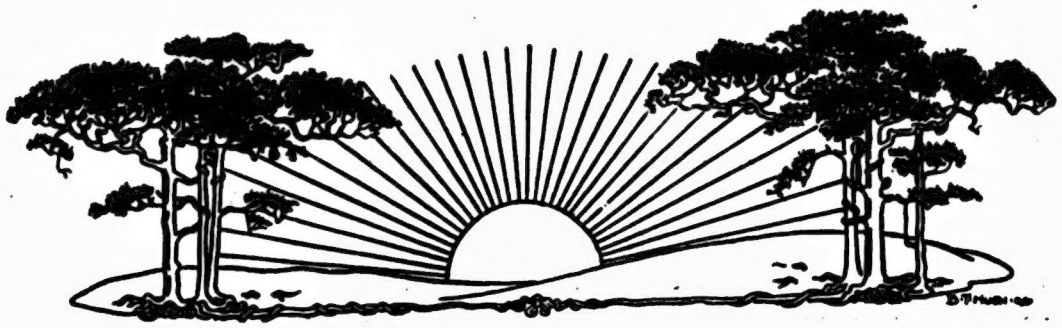
"E. R. S." probably refers to the "Aphengescope," an instrument which can be had of Messrs. Newton & Co., 3, Fleet Street, E.C., or any dealer in lantern accessories, and can be fitted to any good lantern. The light from the condensers of one or more lanterns is concentrated upon any opaque object, such as a small photograph, a watch, etc., which it may be desired to illuminate, and reflected thence through the ordinary lantern objective, by which its magnified image is projected upon the screen. The illumination is, of course, very much less than that of an ordinary lantern slide, the loss of light being considerable, but on a disc of moderate size a very fair result may be obtained with an object capable of reflecting a reasonable amount of light.—W. H. GOLDING.

26 Soap Bubbles Projected.

"Experiments" will find full particulars respecting the optical projection of soap bubbles and similar objects in Mr. Lewis Wright's work on *Light*, published by Macmillan & Co., 1882, and in *Optical Projection* by the same writer, published by Longman & Co., 1891. The former work especially deals very fully with the illustration of the phenomena of light by means of the lantern.—W. H. GOLDING.

26 Soap Bubbles Projected.

You will find what you require on page 214 of the *Optical Magic Lantern Journal* for December, 1894.—H. FOSTER.



THE FLICKERLESS PROJECTION OF MOTION PICTURES.

By the Editor.

THE problem of flickerless projection is to-day still without a satisfactory solution. That it is a much needed desideratum has been shown not only by the unscientific public, who complain of the imperfection apparent to the most casual observer, but also by the ingenious contrivances emanating from our manufacturers, the aim of which has been to dismiss as much as possible the objectionable interval of darkness. Mr. C. M. Hepworth, in his useful little work, entitled "The A, B, C of the Cinematograph," after describing the various attempts that have been made to minimise as much as possible the defect referred to, gives us the benefit of his experience. He says: "The whole question resolves itself into the statement that certain films admit of different degrees of perforation (of the shutter) without involving the introduction of a detrimental amount of 'ghost,' or blur, or other faults. As it is hardly feasible to alter the degree of permeability for every film which is passed through the machine, the simplest plan is to hit upon a fair average and stick to it. After the experiments that I have hinted at, and, as a result, I decided upon cutting four slits in my shutter, each occupying about seven or eight degrees of arc, and equi-distant from one another; and I have seen no cause to regret the decision. It must not be supposed, however, that I dare presume that such a shutter is best; but it has proved so in my hands, and possibly it may serve as some slight guide to other experimenters.

FIG. 1.

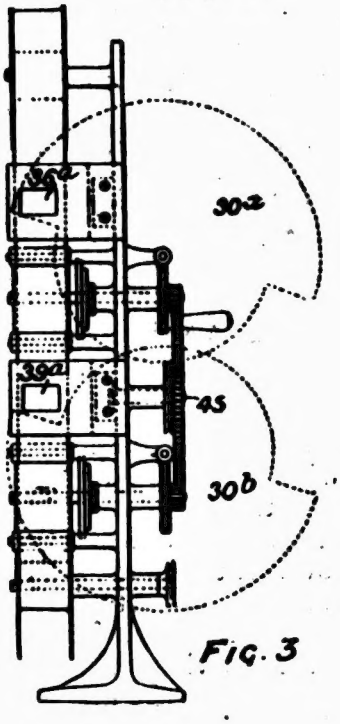


FIG. 3

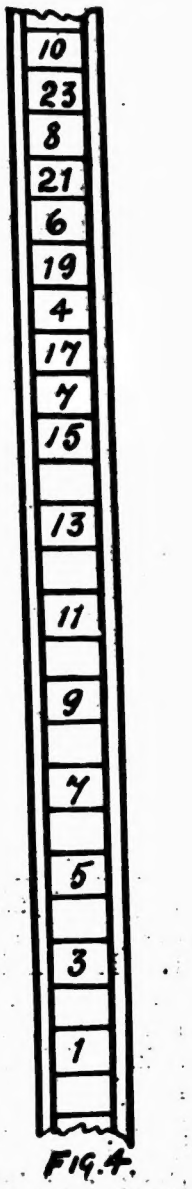


FIG. 4.

The shutter—using the word to convey the impression that a period of darkness or semi-darkness is introduced to cover the change from one little picture to the next—is undoubtedly the cause of flicker; and as it is only reasonable to suppose that experimenters will never rest until flicker has been abolished in connection with cinematography, it is pretty safe to say that in the instrument of the future the shutter will not be found."

arranged in such a manner that an equivalent amount of material is removed at the openings on either side, and no attached counterweight is necessary. It weighs but an ounce or so, and does not, as we have already stated, in any way affect the steadiness of the projected picture.

Mr. Henry V. Hopwood has much to say in reference to the subject in hand, and he gives us a description of a dozen or so different forms of shutters, the aim

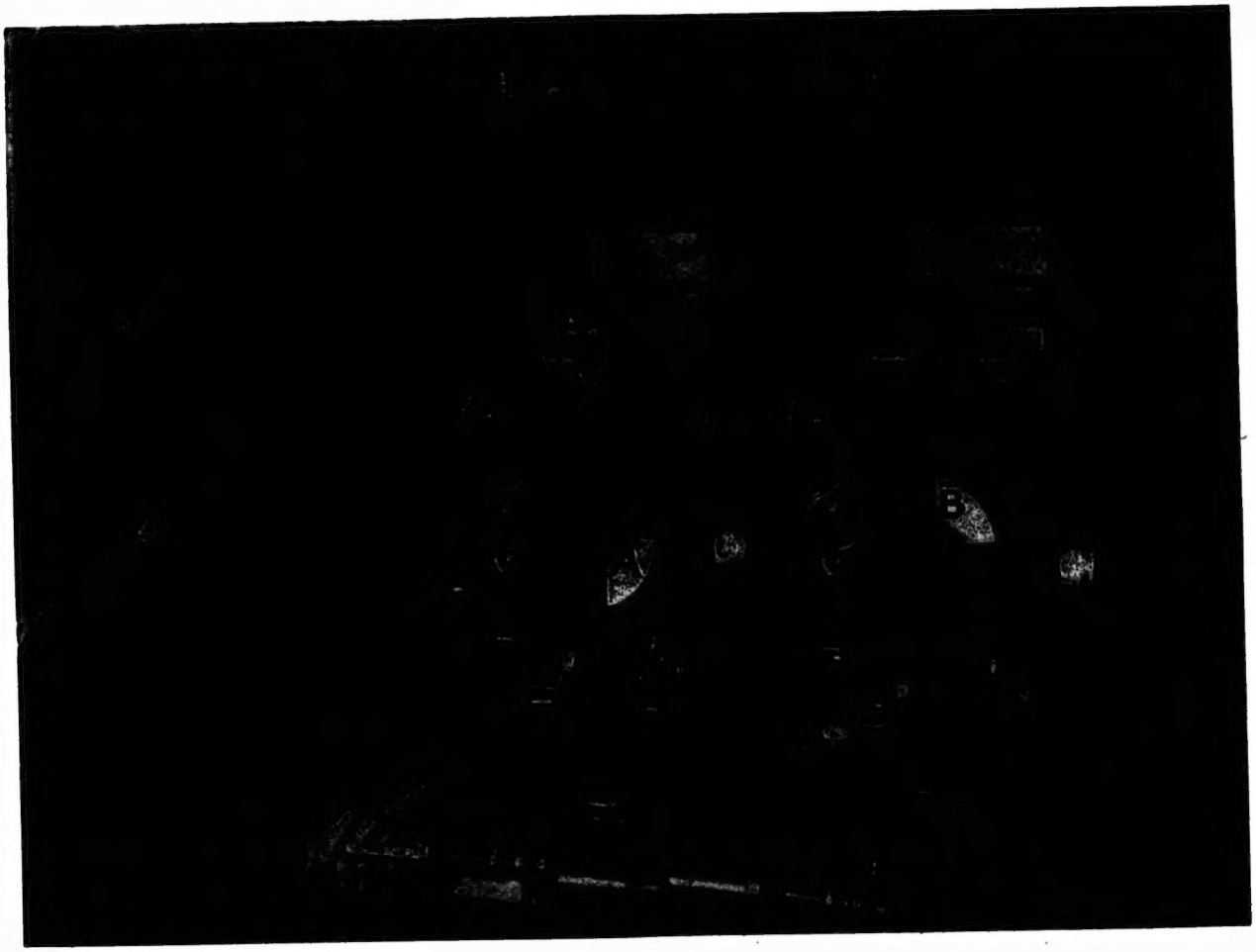


FIG. 2.

The form of shutter designed by Mr. Hepworth, and which he tells us gave him comparative satisfaction, is shown in Fig. 1. It will be seen that this particular form is an improvement on the ordinary fan shape, insomuch that it is well balanced from its axis, and therefore when running does not set up vibrations, which other shutters have been found to do. This improved shutter is cut out of thin sheet aluminium, and the openings are

of which is, of course, to remove flicker. There is no need for us to reiterate what Mr. Hopwood has said, any reader desirous of having particulars of these shutters will find "Living Pictures," by Mr. Hopwood, published by the Gutenberg Press, Ltd., 125, Fleet Street, to contain a most complete list of the various devices. But we notice that Mr. Hopwood remarks: "The type of machine designed to project one picture, before the light from the

preceding one is cut off, will probably remove flicker." In practice this is actually found to be the case, and the "Duplex" Projector shown in Fig. 3 accomplishes the work in a most ingenious manner.

Before referring in detail to the Prestwich production to which we have just made reference, we may note what Mr. Hector Maclean has to say on the subject. "When you want," says he "to change from one lantern slide to another with a single lantern, the best way to do it is by covering the lens for a moment while you slide the carrier through. You cannot make the change without an interval of some kind, more or less unpleasant, except by the use of a biunial lantern. So it is with the cinematograph. Several people have recognised that the way to overcome flicker was to employ two projecting systems, and actuate them alternately, but they did not see how to do it. Some have thought to gain the desired result by running two similar films side by side, each having its own set of lenses, with the rotating shutter covering them alternately, so that one picture is thrown on the screen to cover the flicker of the other."

In connection with this idea, the reader's attention may be directed to the accompanying photograph, Fig. 2. The writer on this occasion employed a pair of Gaumont's Professional Chrono Projectors, connecting them together by means of the steel shaft seen between the two machines at C. The system was similar to that mentioned by Mr. Maclean, but differs insomuch that, at the moment of changing from one optical system to the other, the picture at one point of the operation was a composite one; thus the upper half of the image upon the screen came from one objective, whilst the lower half came from the other objective. In this manner the picture may be said to have been bisected.

It should also be mentioned that, in using this system, the two machines were so geared together that one worked in advance of the other, although both were operated simultaneously and by the same handle. When the machine shown with the shutter marked B was in the position shown in the photo, it was in the act of changing the picture; meanwhile the machine with the shutter A projected the picture. Thus it will be seen that both machines were in constant motion, and the films were moved forward one space alternately. As regards the result upon the screen, it may be said to be absolutely flickerless; and by carefully centreing the two optical systems so that their axis coincided upon the screen—by arranging the illuminants so as to obtain equal brilliancy—and by using duplicate films of common density, the effect was that of a *flickerless motion picture*.

Incidentally it may be mentioned that the writer also made an experiment with this duplicate system, using a pair of his stereoscopic films. Now, it is well known that one of such films passed through an ordinary machine in the usual manner, is sufficient to give the effects of solidity; but the writer's aim in the present case was to obtain not merely stereoscopic effects combined with animation, but also such effects without the presence of flicker. Duplicate (not dissimilar) films were used, and the result, as already implied, was *Direct* Stereoscopic Effects consistent in point of brilliancy, yet giving in all its phases the phenomenon of apparent life.

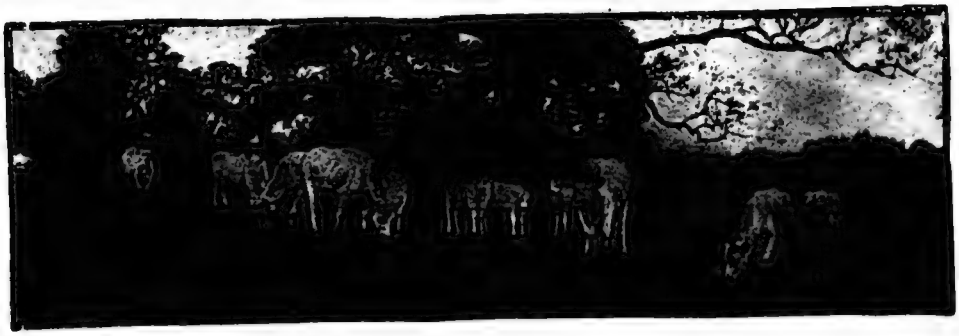
Interesting as this scientific achievement may be regarded, flickerless projection under such circumstances has proved a luxury beyond the reach of the average exhibitor, and our views coincide with those of Mr. Maclean, that, besides the obvious one of requiring two films to serve the purpose of one, there are many disadvantages to this dodge which make it impracticable from a commercial point of view.

The question which naturally suggests itself after such consideration is, Cannot the duplicate system be somehow arranged in a single machine? and the idea has found a practical affect in the "Duplex Projected" of the Prestwich Manufacturing Company, to which we have already referred. The Patent "Duplex" Projecting Machine is shown in Fig. 3. In this case two magic lanterns are used, whose pictures are thrown on the same place on the screen. Each lantern is provided with a film feeding drum, but only one light is employed. Both drums are driven from the hand wheel 45, and act alternately to draw the film past the

apertures 36*a*, 39*a*, or leave it there for exposure. During the movement the corresponding aperture is closed by a shutter 30*a* or 30*b*. By this arrangement the ordinary dark period is avoided, but it is necessary to arrange the pictures in special order. The feed of the strip is made double the length of the picture, and the pictures are then printed in the following order, if the distance between the apertures 36*a* and 39*a* is seven pictures:—2, —, 4, —, 6, — 8, 10, 3, 12, and so on, the even numbered pictures being exhibited by the lower, and the odd by the upper lantern, but in correct order. This special method of printing the positive is otherwise indicated in Fig. 4. The first picture of the series is at the bottom, and it may be supposed to be in position for exhibition in the bottom lantern. No. 2 is fifteen spaces higher up, which is the correct distance to bring it into place in the upper lantern, the intermediate slack being absorbed by the procket wheels and rollers required to give the upper portion of the film the necessary intermittent motion. No. 3 picture is not next above No. 1, but next door but one to it, the intermediate space being blank. No. 4 is a similar distance above No. 2, and so on, until by the time No. 15 is reached the latter figures begin to occupy the spaces left between the earlier.

Before concluding this article, let us listen again to Mr. Hopwood. "How," says he, "will flicker be overcome? Perhaps by alternate and overlapping projection from two lanterns using one film, taken from one point of view. Perhaps also the multiple lens, travelling with a continually moving film, may prove its superiority. It may be that none of the present types will persist; some new idea may carry the day. The use of a mirror to render a travelling film optically stationary is quite a recent suggestion; and though this single mirror must be returned to its first position as each picture passes, there are more unlikely things than the revival of the praxmoscope type, the mirror-drum, which is in continual rotation in one direction, needing no return, and rendering all images optically stationary. So, too, the suggestion of a continually revolving camera, taking a continuous view of the whole horizon, or such part as is left unshielded, needing no shutter, and leaving no period of darkness, having a film in constant motion yet practically stationary, may conceivably be the groundwork upon which a perfect, though somewhat expensive, instrument may be built."

And now, although it has been shown that "flickerlessness" is possible, we ask selves the question, How comes it that flicker still persists speaking generally of the Living Picture Shows of to-day? How is it that we do not find a general adoption of such apparatus as have been devised for the dismissal of flicker? Is the cost excessive, and are the special printing and special projectors the things that block the way? We cannot yet say, and must leave for the present a subject that deserves the most serious concentration of thought, from those whose genius and powers of application, we trust, will deliver us from this darkness.



CONTACT AND REDUCTION.

By the Rev. T. Perkins.

THERE are two methods of printing slides from negatives: (1) by contact; (2) by reduction.

The first method may again be divided into two: (1*a*) printing the whole of a small negative; (1*b*) printing only a selected part of a larger negative. A somewhat similar division may be made in the second method, according as the whole or only part of the negative is copied on the lantern plate.

Each of the methods (1 and 2) has its advantages, and each its disadvantages. (1) Allows greater differences in the intensity of the light; this is an advantage, as it is well known that a longer exposure to a less intense light will often produce a vigorous slide from a flat negative, while a shorter exposure to a stronger light will produce a good slide from a negative in which the contrasts are too strong.

The intensity of the light in contact printing can be regulated without altering the absolute power of the illuminant, by simply holding the printing frame nearer or further from the source of light. A certain variation, though not to so great an extent, may be made by altering the stop of the copying lens, and in order to get as full a power of variation as possible, a modern anastigmat, which has a stop marked $\frac{f}{56}$, should be used. The anastigmat gives a perfectly flat field at full aperture, so no stopping down is required to secure definition. Of course, the lens with its largest stop marked $\frac{f}{56}$ will not be working at that aperture, because it only works at this when an object at an infinite distance is focussed, and as the negative plate is at a comparatively short distance from the lens, the conjugate focus greatly exceeds the focal length of the lens. To take a numerical example. Suppose we require to reduce the whole of the subject on a half plate so that it occupies an area of $3\frac{1}{4} \times 2\frac{3}{8}$ on the lantern plate, then in the formula $\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$, we must make $u = 2v$, and from the equation we get $v = \frac{3}{2}f$.

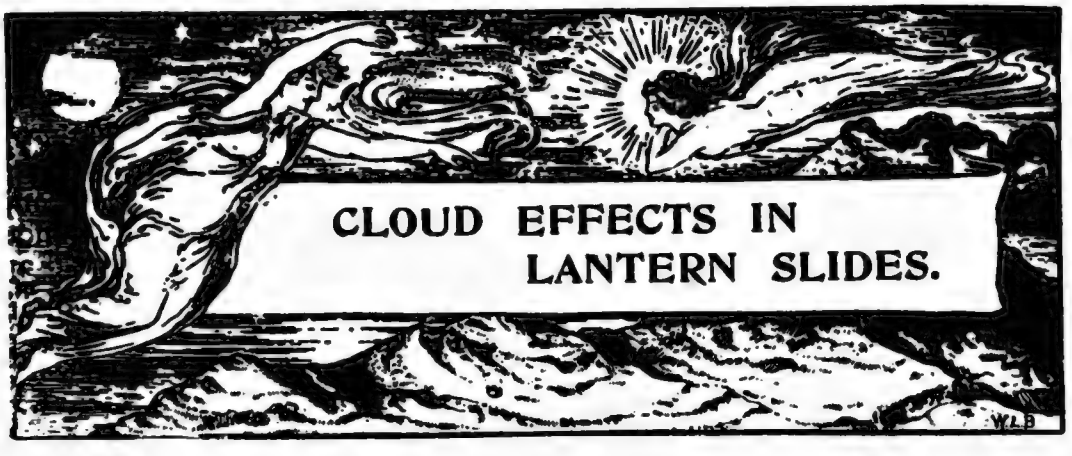
In other words, the lens is working at the same intensity as a lens whose focal length is half as long again would be working if focussed on a distant object, the absolute size of the stop being unchanged. So that, instead of working at $\frac{f}{5.8}$, it would only be working at $\frac{f}{11.2}$, say about $\frac{f}{8}$; at the other end of the scale it would not be well to use a stop less than that marked $\frac{f}{45}$, which would be really working at about $\frac{f}{64}$, for fear of spoiling the definition by introducing diffraction. Hence the rays of variation of the light would be about the same as that obtained by closing the iris down from $\frac{f}{8}$ to $\frac{f}{45}$, that is, the intensity can only be changed from 1 to 32. If as in many copying cameras a single lens is used whose largest stop is marked $\frac{f}{18}$, the only stops available then are those marked $\frac{f}{18}$, $\frac{f}{23}$, $\frac{f}{32}$, $\frac{f}{45}$, and the intensity can only be changed from 1 to 8.

Two minor disadvantages of method (1) is that there is a risk of scratching the negative when placing the lantern plate on it, or even of breaking it by unequal pressure if the plate is a large one and

the springs of the printing frame are too strong. The latter danger may be removed if the printing frame has a sheet of plate glass on which the negative is placed. When printing by contact from a large plate it is important, in all subjects in which perspective is obvious, to include the point of sight on the lantern plate, and to so arrange it that it falls at about equal distances from each side of it, though it may be nearer the top or bottom of the plate without disadvantage. It would, for instance, give rise to an awkward effect if we were to, when printing from an architectural negative on a whole plate, to put the lantern plate so that one edge of it lay along one side of the negative, so that the lines conveyed to a point of sight entirely outside the area of the lantern plate.

The majority of slides made by contact are printed from quarter plate negatives, as, unfortunately, no stand cameras of a smaller size are readily procurable. If there were one that would take the quarter of a half plate ($3\frac{1}{4} \times 2\frac{3}{8}$) it would be a great advantage. Anyone, however, who works solely with a view to getting negatives for the production of lantern slides, can cut half plate into four equal parts, or buy, from those makers who supply them, plates of this size, and use them in carriers, which can be easily made of cardboard. If these small negatives are made, it will be necessary to take certain precautions in printing. A plain sheet of glass, such as a spoilt negative of the full size of the printing frame, from which the film has been stripped, must first be placed in the frame. On this must be laid a thin sheet of card, from the centre of which a space equal to the size of the small negative has to be cut. The sides of this opening must also have pieces of lantern slide binding strips fastened along them, projecting about one-tenth of an inch, so as to form a kind of rebate, and prevent light creeping in round the negative. When this card has been laid on the glass in the frame with the strips of blank paper downward, the negative can be dropped into the aperture, the lantern plate placed on it, and the frame closed ready for exposure.

Whether we use small plates in carriers or full-sized quarter plates, it is desirable in the former case to stick on the focussing screen a sheet of blank paper with a central opening of 3 in. by $2\frac{3}{8}$ in., so that when the view is focussed, no more of the subject can be seen on the screen than will appear on the negative, and in the latter case a sheet of blank paper, with an opening of three inches square for this, will show the utmost amount of the subject that can be included in the finished slide. This method of putting a mask on the focussing screen is much better than merely drawing pencil lines upon it, as it shows at once exactly how much of the subject can be got in, and makes the composing of the view easier. Of course if, when the transparency is printed, it seems desirable to still further mask down the subject, this can be done before the slide is bound up with its cover glass.



By Professor Golding.

IN a recent issue of the "Bulletin" of the "Association Belges de Photographie," M. A. Goderus describes a method of rendering cloud effects in lantern transparencies, which, if not strictly true to nature, he has found very effective, and free from disadvantages which frequently attend the more usual methods of working.

He finds that if the sky receives a shorter exposure than the landscape, it is difficult to avoid leaving a more or less conspicuous line near the horizon, showing the boundary between the differently exposed portions; while if the clouds are printed in from another negative there is considerable risk of the conditions of lighting not being identical in both parts, and of the clouds so introduced not harmonising sufficiently well with the remainder of the picture to conceal the method of their introduction; to say nothing of the probability of the clouds overlapping trees, church spires, or other lofty objects projected against the sky, giving them the appearance of being nearer than the latter, and thus at once destroying the desired effect of distance and exposing the method of working adopted. After referring to these difficulties of manipulation the writer says:

"I have projected some superb stormy clouds with great success, by a method which was no other than the projection of a *negative* of a beautiful sky covered with cumulus.

Since under certain circumstances a negative of clouds may pass as a positive, we shall see what part we can take in such an observation. We choose a fine landscape in which we shall not be troubled by finding trees or spires projected against the sky, and having above all some beautiful clouds, but in which the solar disc does not appear.

It is necessary to expose two plates, one normally, which will give the impression of the landscape, and the other instantaneously, which will serve for the sky. In the development of the second plate we shall stop as soon as the sky has appeared. It is evident that all the foreground and all details which are projected against the sky will remain absolutely transparent.

If by chance any reflection or any high ground light should show itself slightly, it will only need a little skill to remove it with a fine brush and a few drops of Irone Perchloride.

This negative photograph, slightly developed, will serve as a covering glass for the future transparent positive and will at the same time form the sky.

If this method be tried nothing more than a plate will be risked, and I can guarantee complete success if the experiment is made in calm weather, or from a point of view free from the branches of trees disturbed by wind. It is only necessary to take care not to move the apparatus between the two exposures, which must be made from exactly the same position. Thus the two images produced in a stereoscopic camera and differently developed, will not answer the purpose at all, for it

must be clearly understood that the negative picture which is to serve as the sky must be applied accurately to the positive made with the normal exposure, and that all the details of the latter, however minute they may be, which are projected upon the sky, are to occupy the corresponding spaces in the sky negative used as the covering glass. Thus I have seen winter views with branches of trees forming a most delicate network, yet the superposition of the two images of the sky and the earth, was so exact that it was impossible to perceive the device without displacing the positive transparency. It need not be said that the method is unsuitable if the disc of the Sun appears in the sky, or if the latter appears light on one side and dark on the other, and is reflected from the surface of water, for example. The effect obtained in that case would evidently be a false one.

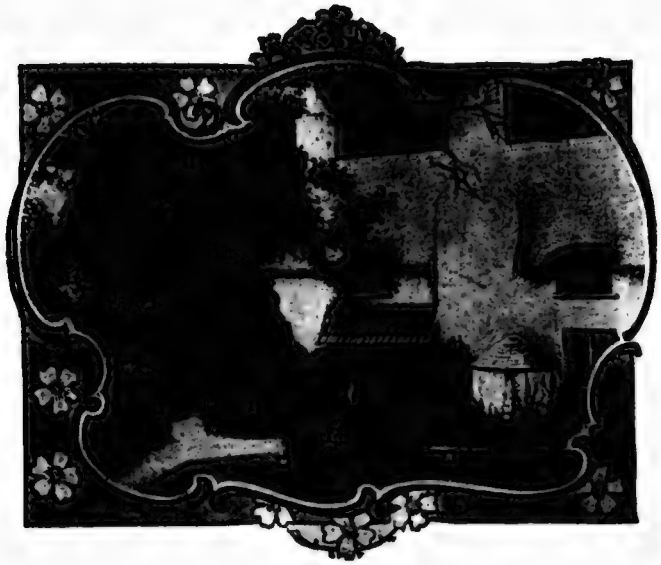
But we can very well employ the device even for a marine view with reflections upon the water, when the Sun is hidden by fleecy clouds, in which light alternates with shade. In this case the luminous centre which surrounds the Sun, although the lights and shadows are really reversed, produces the complete illusion of a positive sky. We can readily understand this when we consider that the forms of clouds are of infinite variety, and that a sky mottled with white upon blue or black upon white, reduced to its simplest form, may be considered as a chess-board.

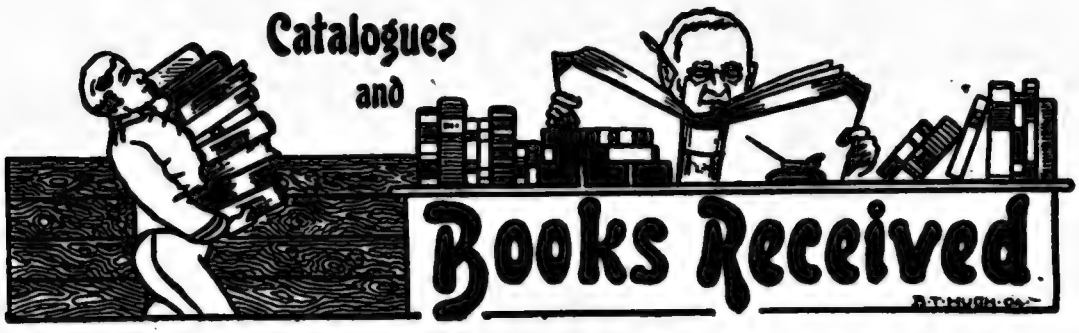
But we might defy the keenest vision, when attempting to examine the photographic projection of a chess-board, to distinguished between the light and the dark parts.

Finally, we may add two important observations. The first is that nothing is so deceptive as the form and apparent distance of clouds; their shadows seen, for example, on the calm waters of a lake, or on the sea, appear entirely different from those seen alone on the sky.

The second observation to be referred to is this. If we are struck by the appearance of clouds in the sky, it is above all by the contrast of colours. We know that the sky is blue and that the clouds are projected upon it white or grey.

But in photography the arrangement of the scene is in monochrome, and the moment the contrast of colours disappears we no longer know how to distinguish which is sky and which is cloud, for the latter may be equally well lighter or darker than the back ground. Besides their infinitely varied form both in outline and importance, defies recognition. Thus a light white cloud seen upon a coloured sky, may be equally well regarded as an opening in a grey sky, the effects of lighting produced on the landscape being nearly the same on either supposition."





Emil Busch Optical Co.—This firm send their list of photographic lenses, which also contains particulars of their special enlarging lantern condensors, cinematograph projection lenses, and lenses for taking living pictures. We also notice they are offering an "Achromatic Lantern Projection Set" for plates 3¼ by 3¼ inches. These lenses are constructed on the Petzval formula, and mounted in brass cylinder tubes, interchangeable to fit the jacket.

The Photographic Dealers' Annual, edited by Mr. Arthur C. Brookes. A copy of this annual duly came to hand. The present issue makes the sixth volume. The tabulated matter has been subjected to a careful revision, and although fully as comprehensive in nature as in former years, the publishers have guarded against any falling off in quantity or quality of the subject matter of the articles. Mr. G. G. Lewis contributes a paper entitled "If I were Behind the Counter," which is obviously written for the benefit of the dealer, and should prove of practical service. Under the same category we may include "Some Dealers who have Served Me," by A. Cust-Omer. Mr. Edward Evans' contribution on the "New Patent Law," and Mr. W. Perry Barringer's views on the "Influence of the Press on the Trade," will no doubt prove of interest. On page 64 lanternists will find a list of things necessary for a lantern exhibition.

The Charles Urban Trading Co. has just sent their new catalogue. It contains some 336 pages, an increase on last year's issue of 134 pages. This year's production comprises a revised list of high class original and copyrighted bioscope films. Urban Films, depicting scenes from all countries; Urban Educational Series, Geo. Milies' Star Films, and the best productions of Messrs. Lumiere, G. A. Smith, West's "Our Navy," Williamson, Nordon, and other makers. We take this opportunity of mentioning that Urban films are of absolute standard American gauge perforations, and the makers claim that they give the steadiest reproductions, that the subjects are printed on the best film stock obtainable, and do not shrink or become brittle. It is a precaution taken by this Company, which we admire, that all films catalogued preclude senseless frivolity, suggestive or immoral tendencies, the depicting of criminal or depraved subjects. We are asked to draw the attention of principals of colleges, schools, and educational institutions; the secretaries of committees of natural history, scientific, literary, and photographic societies, and all who are engaged in lecturing, teaching, etc., to the remarkable and unique series of films and lantern slides listed in this catalogue. The Charles Urban Trading Co. claim to be the first who applied animated photography to the recording of living microscopic organisms, to zoology, botany, physics, electricity, entomology, anthropology, etc. Modern educational methods all prove the importance of teaching through the agency of the eye as well as the ear. A lecture or lesson demonstrated by a graphic series of pictures remains vividly impressed on the mind.

Wonders of the Telephographic Lens.—This booklet, which is really a reprint of an article written by Mr. Charles E. Shea, in the Gardener's Magazine, deals in a readable manner with the work of the now celebrated "Dallmeyer Telephographic Lenses." The booklet contains many comparison pictures, illustrating in a remarkable manner the great contrasts existing between pictures taken in the ordinary way, and those produced with the aid of the Telephoto Lens.

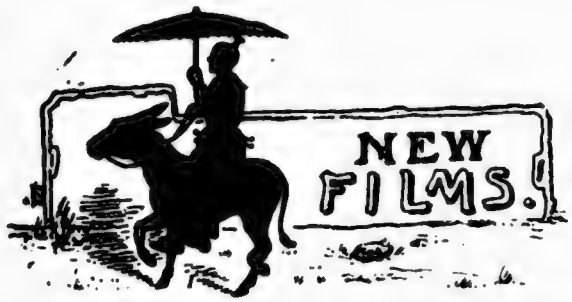
The Monthly "Elge" List.—Messrs. L. Gaumont & Co. send their list of films for the current month. In addition to their own productions we note they are this month listing some American Biograph subjects, including "The Wedding Morn," the title of which sufficiently indicates the nature of the pictures included. Messrs. Gaumont include a reminder to Exhibitors in the form of a fly-leaf, which runs thus—"Are you the Exhibitor that wishes to keep booked up? If so you must have continually a fresh change of new films, for neither the public nor the managers will countenance or patronise showmen with old out-of-date stuff." We hope exhibitors will take this to heart, and realise, that it is often the stale pictures they have on show that is the real cause of their small houses.

Fallowfield's Courier, No. 15:—This monthly trade journal is again devoted chiefly to the "Taquta" an ingenious contrivance that automatically takes and finishes the photograph to the last stage. We understand that this device is proving very popular, and that already 250 cameras have been despatched. In order to assist dealers in showing the camera in

operation, Mr. Fallowfield has made a large number of "dummy plates," so that a magazine containing forty-five plates can be passed through the camera and then replaced. Another novelty offered this month for the first time, is a special Telescopic Stand for Small Cameras. This tripod is fitted with a double vertical extension which enables the camera to be held higher than the average stand permits.

Camera House Journal.—This month Messrs. Butcher & Sons, devote five pages to fiction. "The Mystery of the Double Dog" occupies three, and "Rapid Review" another two. There is apparently no connection between this part of the journal and that devoted to details of their products. We shall possibly see hereafter the drift of the scheme; meanwhile we note they have a very full list this month of "Rummage" articles for sale, and the prices asked are exceptionally low.

The Book of Photography.—Edited by Mr. Paul N. Hasluck and published by Messrs. Cassell & Co., Ltd. It is evident that Mr. Hasluck has spared neither pains or trouble in the compiling of the volume before us. It is a book that is bound to prove of permanent value to every photographer whose good fortune it is to possess a copy, be he amateur or professional. The Editor with the help of experts who have made the subject upon which they write a speciality, has succeeded completely in the creation of a single and handy size volume, within the covers of which may be found information of a reliable character, on almost every conceivable phase of photography, practical, theoretical and applied. A very full index, an indispensable adjunct to so comprehensive a work, has been provided, and at the commencement of the book one finds a useful Glossary of terms used in photography. Space will not allow the mentioning of all the branches of photography dealt with, but we may be permitted to name a few:—Cameras and Accessories—Plates and Films—Exposure of the Photographic Plates—Developing the Photographic Plate and Film—Reduction of the Negative—Preparing the Negative for Printing—Retouching—Printing-Out Processes and Papers—Development Processes of Printing—The Dark Room and its Fittings—Mounting and Framing Photographs—Pinhole Photography—Enlarging, Copying, and Making Lantern Slides—Methods of Colour Photography—Lenses, their Construction and Use—The Chemical Action of Light—Theory of the Latent Image—Orthochromatic Photography—Spectrophotography—Astronomical Photography—Stereoscopic Photography—Telephoto Photography—Animated Photography—and Photo Mechanical Work. There are no less than 744 pages of matter illustrated with some 933 figures, diagrams and photographic reproductions; in addition to which 48 full page plates are inserted. Altogether the volume is one that will be highly valued as a reliable reference book and guide; and those who know a good thing when they see it, will not be slow to show their appreciation of the painstaking labour expended on its production, by purchasing a copy for the library.



THIS month has been a fairly busy one. The visit of the King of Spain afforded camera operators plenty of opportunity to display their skill, and we should say that very few of the monarchs of the present day have managed to compress such a large amount of sightseeing and pageantry into one single week, and that week a very wet one. Royal Ascot has also come and gone with its Royal Procession, gilded society, and high class thoroughbreds. Nearly all the leading cinematograph firms obtained excellent pictures of these events, which will always be popular subjects with the public. Henley Regatta is fast approaching, and once again we expect to see the well-known faces in the most advantageous positions, and hear the whirr of the camera mechanisms as the competing crews flash past the winning post.

WITH so many firms now in the business, and the prospects of their number being added to, competition is becoming more and more keen, and this, we think, tends to improve the trade, as it effectually prevents anyone from resting on a previous reputation, but compels every manufacturer to be on the alert for fresh and interesting subjects.

THE most "enterprising" film we have seen since our last issue is that illustrating the exciting industry of "Whale Fishing." This was taken by Mr. Barker, of the Autoscope Company, and every credit is due to this gentleman for the masterly way in which he has handled the subject. One first sees the "look-out" climbing the rigging and entering the "crow's nest," from which he anxiously surveys the surface of the sea, hoping to discover the spouting of the whale. The next three scenes show this monster of the deep being closely pursued by the whaler, the gunner on the forecastle having his hand on the trigger of the gun, waiting to fire the harpoon into the huge carcase of the animal. The scene when the critical moment arrives—and with a heavy explosion the harpoon is fired and penetrates the whale—is most distinct. The straining of the rope over the various pulley blocks, as the leviathan makes

a spirited bid for freedom, is most realistic. Man's intellect at last triumphs over brute force, and a view of the steamer with the dead whale (which weighs over seven tons) is shown proceeding to the whaling station, where the blubber is stripped from the body, and the closing scenes show myriads of sea fowl circling round in the air, waiting for a chance to settle on the body. We understand that the Warwick Trading Co., Ltd., have acquired the sole selling rights on this subject, which should have a most phenomenal sale.

MESSRS. PATHÉ FRÈRES have placed a number of good films on the market, the best of which is one called "The Christian Martyrs," in which live lions are employed with realistic effect. The scenery of the subject is very well done, and carries a spectator back to the days of ancient Rome in the days of Nero.

MESSRS. GAUMONT & Co. again have a nap hand of new subjects: "Married Bliss," "The Burglar Lover," and "A Dog Wanted," being especially good and amusing.

R. W. PAUL, ESQ., has put some of his best work into a subject called "All Through a Typewriter," which is an amusing "chase" film, very cleverly worked out."

MESSRS. HEPWORTH & Co. have excelled all their previous efforts in a film called "Falsely Accused." The scene, where the thief enters the office in the dead of night and robs the safe, is most cleverly done. The shadow effect is magnificent, and leaves a most weird impression. We can confidently recommend this subject to our readers as being in the very front rank of this month's subjects.

THE WARWICK TRADING CO. LTD., have a good film entitled "The Burglar's Slide for Life," in which a bulldog chases a man down a clothes line from the top of a house down into the street, and detains him until he is captured. This is a decided novelty, and should catch on with exhibitors. They have also a short film of an elephant bathing, in which the enormous brute is seen with his head and body submerged, and his feet sticking up in the air. Animal studies are apparently this firm's specialité, and the foregoing is one of their best examples.

THE WALTURDAW Co. have—in addition to the new films spoken of in our last issue—some specially good humorous subjects that should be appreciated where exhibitions are being given in the hot weather. There are three subjects that we would specially draw attention to, viz., "An Eighteenpenny Lunch;" a study in facial expression, entitled "A Good Joke;" and amusing scenes of old-fashioned country life, entitled "Mr. and Mrs. Brown in the Stocks." This firm have a speciality for operators this month that should appeal to them. It is a condenser with a good many improvements, but sold at the old prices. The chief point of interest is the introduction of a claw arrangement that enables the glasses to be very easily changed if a breakage occurs, and it allows for a clear current of air between the lenses, which greatly minimises the chance of breakage. There are other important changes that distinctly appeal to users, and the condenser should have a ready sale.

A METHOD FOR PUTTING PRINTED MATTER ON FINISHED LANTERN SLIDES.

BY A. J. HONEKING.

THOSE who make lantern slides know that the best slides—those having the most detail—are those made from negatives first hand, either by contact or by direct reduction in the camera. When a slide is to be made from a photograph or picture of any kind, titles or printed matter of any nature can be copied at the same time the negative is made from which to make the slide; but if a slide be made from a negative first hand, that is, without making a print and again copying, as is often done, it is not so easy to put printed matter on the negative so that it will appear on the finished slide.

The following is a method devised by the writer whereby printed matter of any kind may be made to appear on the finished slide, no matter how the slide be made—by contact or by direct reduction from any sized negative. Have the title, phrase, or sentence, or whatever printed matter is desired on the slide, printed in good clear type on smooth white paper, just as you would have it appear on the slide. The printing may be of any convenient size, two or three times as large as you wish it

to appear on the slide, or even larger. Place this printed matter on the copying-board, and make a negative of it, any size, but not larger than 4 in. by 5 in. Develop this negative until the background is quite black, or until the printed matter shows slightly on the back side of the plate when viewed by reflected light in the dark room. Printed matter for a dozen or more slides may be copied at the same time on one plate if so desired. When this negative is fixed, washed, and dried, mat out everything, except what is wanted, with black paper. Now place this negative in good light, with the clear sky for a background, or a good white screen of any kind about 2 ft. back of the negative makes a good background. Turn the negative so the printing will be wrong side up, and the glass side of the negative toward the camera. By measuring, determine just where you would have the printing occur on the finished slide. Now adjust the camera until the printing shows plainly just where, and just as large, as you wish it to appear on the slide when finished. Next put a lantern slide plate in the plate-holder, and expose twenty to thirty seconds, and develop just as you would a lantern slide.

When this plate is fixed, washed, and dried, it is to be used as a cover-glass by placing the film side in contact with the film of the lantern slide.

The printing will now read as it should, and will be in good focus when the picture on the slide is in focus in the lantern.

If the slide is too dense for the printing to show through, the cover may be fitted on the slide and marked, and then by means of a ruler and a sharp knife a space large enough for the printing can be cleared away.

This process may appear to be somewhat long, but in practice is much shorter and easier than it appears, especially when several slides are to be prepared in this way.

It is necessary to first copy the printing, and then copy the positive side of the negative as directed above, in order to make the printing read correctly, and at the same time have the film of the cover and the film of the slide bound together, so both may be protected and both in focus at the same time.—*Scientific American.*

Stereoscopic Notes.

The United Stereoscopic Society.

The July set of the United Stereoscopic Society contains a very interesting demonstration on Photography. The writer, Mr. Victor Selby (of Brussels), illustrates some very fine slides, amongst which are two mountain scenes of the Alps; by comparing Slide A (taken with lenses 4 inches apart) with Slide B (taken with lenses 1,600 inches apart), a vast difference is obtained. The Secretary wishes us to make it known that there are still a few vacancies open for good stereoscopic workers abroad; and that he will be pleased to answer any communications respecting the Society and its work. His address is A. J. Snow, 84, St. Andrew's Road, Walthamstow, E.

Three New Stereoscopic Cameras.

The fact that three different firms have recently placed new stereoscopic cameras on the market is only one of the many indications that stereoscopy is still increasingly popular with photographic workers. The Emil Busch Optical Co. are introducing their so-called "Stereo Beecam" for stereoscopic plates, $6\frac{3}{4} \times 3\frac{1}{4}$ inches. A pair of Busch Periplanat Lenses, working at F/9, are fitted to the metal shutter with which the camera is furnished, the focus of the lenses being $5\frac{1}{4}$ inches. Messrs. Chas. Zimmermann & Co., of 9 and 10, St. Mary-at-Hill, London, are also introducing a combination camera which can be used either for taking single panoramic views or stereoscopic views. The camera is fitted with double extension, rack rising and sliding front, automatic stereo shutter for time and instantaneous exposures. It takes plates $6\frac{1}{2} \times 3\frac{1}{4}$ inches. Another stereo camera by the same firm is the "Moser." This is of the "Detective" type, being a hand camera fitted with a pair of detective aplanat lenses. Yet another stereo camera by Kodak, Ltd., called the Stereo-Brownie Kodak. This camera is simple in construction, being free from any unnecessary complications, yet all the movements necessary for the work, which is likely to be undertaken in the ordinary

way, are provided for. The camera embodies all the well-known features of the Kodak ordinary, including daylight loading and daylight changing. Each picture of the stereoscopic pair measures $2\frac{5}{8} \times 3\frac{1}{4}$ inches, and roll film cartridges for ten, six, and four pair are supplied.

The Retouching of Stereoscopic Negatives.

Owing to the fact that it is necessary that the dissimilar pair of pictures in a stereoscope should be identical as regards retouching marks, it has been found absolutely impossible to retouch a pair successfully; for unless every spot from the retouching pencil is placed in each negative so that it registers as regards position with that of its companion, the effect of the combined images in the stereoscope is that of flying flakes of snow detached from the various objects to which it was intended that they should be associated. This difficulty has now been overcome by an apparatus called the Automatic Retoucher, being placed on the market by Mr. W. Tylar, of Birmingham. The Automatic Retoucher is composed chiefly of a revolving set of different sized stops, which by means of a spring and rackwork is made to operate during the exposure of the plate or uncovering of the lens. If a pair of these instruments are used on the two lenses of a stereoscopic camera, and set working whilst the photographic images are making their impression upon the sensitive plate, these images will be softened equally and simultaneously; and when the dissimilar images are examined, combined by the lenses of a stereoscope, there are none of the objectionable defects above referred to, and yet the otherwise harsh lines of the face of the subject, or any undue shadows are reduced, thus making stereo-portraiture with retouched effects satisfactory.

The Book of Photography,

Issued by Messrs. Cassell & Co., and of which we print a full report elsewhere, contains a section devoted to the science and art of Stereoscopic Photography. Almost every phase of the subject is touched upon, and this section alone is illustrated with 44 Figs., together with three plates showing examples of Stereo-Night Photography—Stereoscopic Pictures showing degree of dissimilarity in the pair of pictures—Stereoscopic Pictures taken on one plate with one lens by turning the camera on its axis between the two exposures — Stereoscopic Flower subject properly lighted—and a good composition for stereoscopy, but badly lighted.

Death of a Noted Stereoscopic Worker.

After going to press with our last issue, we heard with regret of the death of Horatio Nelson King, which took place on May 25th, at the age of seventy-five. Mr. King was one of the oldest stereoscopic workers, he having practised binocular photography in the days of the Collodion process. His business was not entirely devoted to this art of stereoscopic work, but embraced an immense field of portraiture and landscape. He introduced photography to the railway companies, and made tours of many parts of the country in the interests of several of the great lines. We have a large collection of his stereograms which are highly valued, many of the subjects being such as can only be obtained by those who have access to the palaces of Royalty.

Stereoscopy and Star Charts.

Mr. Thomas Bolas, writing in the *Amateur Photographer*, says: "A curious application of stereoscopy has been made by Mr. T. E. Heath in connection with star charts, that of showing at a glance the relative distance at which the stars are supposed to float in space, the principle involved being one worked out some forty years ago by Dove. Dove illustrated his principle by distributing and resetting letterpress matter, the utmost care being taken to space both settings exactly alike; but minute differences, due to traces of dust on the types, so altered the relative positions of the letters that, on viewing the pair by means of the stereoscope, some letters appeared to be behind the plane of the paper, and others in front, in short, the type face seemed uneven. In this application of the stereoscope we have a ready means by which the most carefully executed reprint can be distinguished from the impression obtained by using the original forme."

HOME-MADE LANTERN PLATES.

CONSIDERING the general excellence and moderate cost of the commercial lantern plate, it is probable that comparatively few would care to undertake their manufacture at home, but those who have the spare time and inclination will find the preparation of a simple emulsion and the coating of a few dozen lantern plates not only of considerable interest, but of educational value as well. Mr. S. H. Wratten, at the Croydon Camera Club on the 5th inst., very clearly showed and explained how a slow lantern plate might be made without difficulty, and, judging from the slides which were afterwards thrown on the screen, of first-rate quality also.

A SIMPLE FORMULA.

The following was the formula and method of working recommended by Mr. Wratten:—40 grains of Nelson's No. 1 gelatine are taken and rinsed in two or three changes of water, to remove adhering dirt and any acidity present, and placed in a clean jam-pot with the addition of four ounces of distilled water. The mixture is gently heated, stirring the while, and the following added and thoroughly incorporated:—

Ammonium bromide ...	110 grains.
Sodium chloride (ordinary table salt)	30 grains.
Hydrochloric acid (1 in 10)	10 minims.

The ammonium bromide should be tested for acidity, and, if acid, neutralised with ammonia. In a clean graduate next dissolve 200 grains of silver nitrate in one ounce of distilled water. The foregoing operations can be conducted in ordinary daylight; the subsequent ones must take place in the dark room, but a very bright orange light can be employed, and with advantage, without any fear of fogging the emulsion.

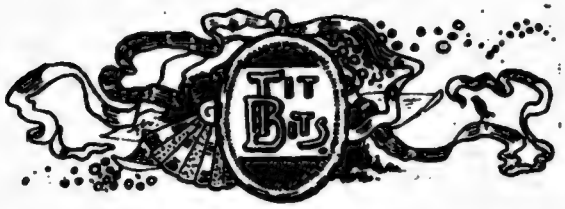
MAKING THE EMULSION.

The silver solution is now added very gradually in a fine stream to the solution first made up, which is maintained at a temperature of 125 degrees Fahr., stirring well with a glass rod all the time, and the mixture digested at a temperature of 150 degrees Fahr. for ten minutes; 175 grains of a good hard gelatine (previously soaked till quite soft, and rinsed in two or three changes of water) are next added, and when dissolved the bulk of the liquid is made up to eight ounces with distilled water. The emulsion, which should, by transmitted light, appear of a ruby colour, is allowed to set, and when firm cut up with a bone or ivory paper-knife into small squares and tied up in a canvas bag of fairly open mesh, the bag being suspended in a pail of water for half-an-hour, the water being changed every five minutes. This will remove the soluble salts. The surplus water is then well drained off, the emulsion remelted, filtered through any suitable fabric, and two grains of tannin finally added.

COATING THE PLATES.

For coating the plates an ordinary stoneware teapot will be found most suitable. The glass plate, which must be scrupulously clean, is conveniently held by a pneumatic holder, and the emulsion, at a temperature of about 100 degrees Fahr., poured on, and made to flow to each corner by gently tilting the plate, any air bubbles that may form being immediately conducted to the edge with the glass rod. The plate is now carefully slid on to a level and wet surface—a piece of levelled plate-glass answering very well—and allowed to set. In hot weather it may be necessary to cool artifically the levelled slab with ice. When set, the plates are, one by one, removed to a drying cupboard, through which a current of warm dry air is allowed to circulate, and stacked at an angle of 45 degrees, at least four inches apart to ensure even drying. The plates will be found to work well with any reliable transparency developer, and if carefully stored will remain in good condition for a considerable period, six months at least.—*British Journal of Photography*.

Mr. Geo. Ewing, F.R.P.S., etc., who is the Editor of *St. Veronica*, the journal of photography which hails from Calcutta, has been seriously ill, and consequently the last number we received contains much we have previously seen in other journals. We trust he may recover in time to superintend the next edition.



Maude Leslie's Entertainments.—We are informed that this firm, whose business address is 83, Belmont Road, Liverpool, is making elaborate preparations to meet the requirements of the coming season. In addition to up-to-date bioscope pictures, the firm makes a speciality of dioramic dissolving views with mechanical effects.

Motor Cinematography.—The Commission des Concours of the Automobile Club de France has arranged for cinematograph views to be taken of the commercial motors participating in the trials, which began on June 28th. At each of the four local Exhibitions, viz., at Amiens, Dieppe, Le Havre, and Rouen, living pictures of preceding incidents of the trials will be shown. This is one of the many instances of activity which prevails across the Channel.

The Liverpool Cinematograph Trading Co.—This firm, who opened business some time in January, informs us that their trade has been increasing with leaps and bounds. They are just now completing arrangements for the manufacture of special film subjects, which they intend making a leading line in the future. They tell us that an improved type of "Bioscope," which they have had on sale for some time, has proved a great success, and orders for the same have been booked faster than the instrument could be supplied. We congratulate the firm on the success of their enterprise, and wish them every success in the future.

Art and the Cinematograph.—It is a thing to be said in favour of motion pictures taken by the cinematograph that the movement of the subject is never arrested, and that the impression gained from the projection upon the screen tends towards those of a purely artistic character. To compel a painter to represent arrested motion, an actual momentary attidude, because he has the presentation of a single moment of time, would be as wise to confine him to the use of those colours which do not modify each other harmoniously when in juxtaposition, though science proves the isolated existence of primary colours in the spectrum. Objects, though passing continuously through an unbroken series, seem to the eye to have no break in the succession. Likewise, in the inspection of a cinematograph exhibition, the observer is not conscious of any particular phase, but gains the natural impression of an harmonious whole. Many snapshot single photographs give us attitudes of the subject in motion assumed at one particular moment, and in many instances it seems to us to be an impossible attitude. Painters avoid this phase in their suggestions of life, whilst the cinematograph dissolves the awkward phase by merging it into preceding and following one.

Taking Moving Pictures in the New York Subway.—Moving pictures were recently taken in the New York Subway, use being made of mercury vapour lamps for producing the necessary illumination. An illustrated description of the outfit appears in the *Electrical Review* of New York for May 27, should any of our readers desire to have fuller particulars. Briefly, upon two flat cars supplied by the Interborough Rapid Transit Co., the American Mutoscope and Bioscope Co. had mounted a complete generating outfit and nine banks of eight 45 in. type K mercury vapour lamps, which were stagged and arranged diagonally across the forward flat car, so that the light was thrown to one side, and immediately ahead of the car upon which the camera was mounted. The flat cars containing the generating apparatus and lamps proceeded at an even speed on the up-town express tracks immediately to the left of the local track upon which the cars with the camera ran. Each lamp was placed immediately in front of a polished metal reflector. The lamps were started by means of a kicking coil, the coils being arranged along the bottom of the frame. The generating apparatus included a 40 H.P. 600-volt Westinghouse motor, taking current from the third rail, and belted to a 110-volt 22 KW. four pole Westinghouse generator. Between the generator and motor there was a convenient switch table, with all necessary instruments.

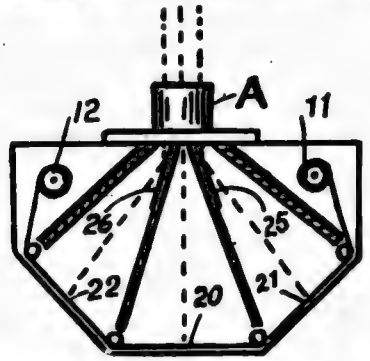
Mr. Charles Frohman's latest project should certainly ensure him the gratitude of all dramatists, remarks the *Telegraph*. It involves the securing, by means of the biograph, of an enormous number of "living" pictures in all portions of the habitable globe. This done, the films are to be despatched to Mr. Frohman's offices at New York and London, where steps will be taken for their development and exhibition. The real value of the idea lies in its application, and this is how Mr. Frohman proposes to apply his. Let us suppose a playwright approaches him with an acceptable notion for a new play, and the question arises in what particular locality it would be most desirable to place the action. Shall it be at the old Pump Room at the Wells, under the shadow of the dome of St. Paul's, in the middle of the Sahara, or on the top of Mont Blanc? To any of these emergencies Mr. Frohman is quite equal. "Allow me," he will say to the puzzled dramatist, "to show you living pictures of these various spots, and then you can choose which suits your purpose best." No sooner said than done; the operator sets his machine in motion, and the playwright is afforded an "animated" view of the particular locality he desires to see. What could be simpler or more effective? The other day Mr. Frohman made a trip to Bath in quest of material, and later he hopes to ransack Ireland, Scotland, France, and Germany, with the view of satisfying the passionate desire for realism by which he is at present beset.

Editorial Office.—As some correspondents continue to send letters intended for this department to Salisbury, we would again point out that the Editorial office is now at 26, Drummond Road, Bournemouth.

PATENTS.

No. 4,127. Producing Coloured Photographs. O'DONNELL, H., 431, Flowers Avenue, Pittsburg, and South, W.C., ARDEN BERWYN, both in Pennsylvania, U.S.A. February 18.

A camera for trichromatic photography produces by a single lens; one image directly, and two by reflection. Reference being made to the accompanying diagram. This is a transverse section showing the lens at A. The camera is divided into three compartments, and the sensitive film passes in Kodak fashion from one spool 11 to a second spool 12, passing over rollers at the back of the camera. The two mirrors, which presumably are plane plates optically ground and silvered on the front surface, are shown at 25 and 26. Coloured screens are inter-



posed between the lens and the film, for the purpose of sifting the colours. It will be noticed that as the outside images, *i.e.*, the ones received at 21 and 22, are reflected, they will be revesed as regards comparison with the image received in the centre; this arrangement may be corrected in the printing stage, or in some systems of combining the positions it may prove an advantage.

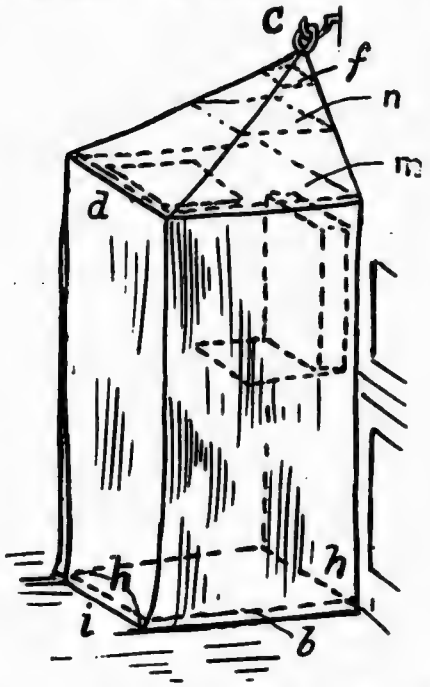
No. 4941. Producing Coloured Photographs; Sensitized Plates and Films! Chromo and Gelatine processes. HESEKIEL, A., 2, Lutzowstrasse, Berlin. Feb. 22.

Coloured single or double transfer prints are obtained at one operation from an ordinary negative, and the printing surface is formed of superposed layers of gelatine, arranged so that the whole may be easily detached from the support. These layers are coloured, the colour being densest in the lowest layer, and least in the upper one. The suggested order of colour is blue, pink, yellow, green and black, certain of these the pink and red, are inserted for contrast purposes. A deep red, non-actinic film is the last of the films, and, not being rendered insoluble by any light, enables the film to be easily detached by the aid of warm water. When such a compound printing surface is exposed beneath a black and white negative, the parts of this negative which are very opaque, that is represent the blue sky, etc., will let very little light through, consequently only the top or blue layer of the film will be rendered insoluble; while the parts which are very transparent will permit the light to penetrate as far as the black layer, so that after making a single transfer and after washing off the soluble layers, the print will appear in natural colours, if each layer is of such a density as to prevent the layer beneath it from shining through it. On making a second transfer, the places where the light penetrates to the green will still appear green, if the density of each layer be such as to overpower all those above it. The reason of the introduction of the pink and red layer can be illustrated as follows:—

If the yellow layer were not separated from the blue by the pink layer, those portions of the sky are somewhat less transparent on the negative, that is to say, the clouds should show a mixture of blue and yellow on the pink, and so produce green. The presence of the pink layer, complimentary to the blue above it, merely produces a darker tint. These films, each layer of which must be dried before the next is laid on, may be prepared by drawing the paper through a solution of coloured gelatine, just above its melting point, at certain speeds, varying the speed, temperature, and concentration according to the density required.

No. 4872. Dark Rooms. MOST, E., 50, Sonneggstrasse, Zurich, Switzerland. Feb. 27.

A collapsable and portable dark room provided with ventilating openings, is adapted to be suspended from a hook on a wall. The figure shows the dark room fitted up for use and suspended from a hook by chains *c*, the ends of the chain being attached to the four corners of the collapsable frame *d*. The covering *g* is fixed on the frame *d* folding over on the side opposite the wall. The bottom of the cover *g* carries



a border *i*, to prevent light from entering, and also weights *h* or a heavy chain to keep it in position. In the roof two horizontal partitions *m n* are inserted with openings arranged so that light entering through the ventilating opening *f* cannot enter the room, while gases can escape. The interior of the room may be fitted up with cardboards for photographic appliances.

MARVELS OF SCIENCE.

MARVELLOUS have been the results with which Science has startled the world in the last decades of the dying century.

Our wonder was stirred when the Phonograph of Edison enabled us to record, and reproduce, speech and other sounds, thus enabling us to hand down to posterity the actual voices of the famous dead. Had Edison worked a good century ago we might to-day be listening to the voice of the great Lord Chatham in that splendid speech, wherein he denounced our employment of barbarous methods in so-called civilised warfare—in that case against our brethren in America. Then came the Telephone, aided by the Microphone, to carry afar the actual voice of the speaker; and, later, the Marconi system of wireless telegraphy, which is destined to make those interested in Channel submarine cable lines feel rather anxious. Once again the world was astonished by the discovery of the wondrous powers of the X-rays, penetrating, as they do, material bodies before supposed to be totally impervious to rays capable of conveying vision. We all know what a grand aid to the surgeon these X-rays have been, and in connection with the earlier experiments with the rays the story comes to us from Vienna that the X-ray, with its penetrating beam, disclosed and brought to light, deep down in the recesses of the heart of a beautiful young Viennese, the image of a certain not bad-looking Oberst-lieutenant. The story may not be true, but "they say" it is. And why a further development of this same ray should not lead to clear "thought reading" I quite fail to see. A powerful ray will throw an image of the brain upon the screen, and the brain movements responsive, and correspondent to the impulses of thought have but to be recognised, codified, and brought to system, and we shall have an engine of cross-examination more potent than the ablest Q.C., for who would believe the witness who said "Yes" when his brain-movement clearly answered "No"? And, besides, we shall be able to know, in very truth, what our "best friend" thinks of us. Here, then, is a grand field for speculative experiment open to the budding Scientist.

But, not attempting to enumerate one tithe of the later wonders of science, it is impossible to omit notice of the device based on a system of quickly oscillating mirrors, now in process of development in Austria, by which sight of an actual object may be conveyed along an insulated wire by magnetic current exactly as can the sound transmitted by the telephone. And it is alleged that by the aid of this device a photograph of St. Stefan's Kirche, in Vienna, was taken in a room distant six miles, the visual force being conveyed by wire alone. It seems, therefore, that the younger amongst us may live to witness the perfection of a system by which, sitting at home by the quiet fireside, they may both hear and see the performance of the latest Opera at the Opera house. What a curious world it will be when the next century lies dying. Some quiet people would almost wish to be out of it almost the full century before such a machine-made existence comes to supplant all the Nature and poetry of life.—CHARLES E. SHED, in the *Gardeners' Magazine.*

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Trade Announcements.

35 Copies of "Stereoscopic Phenomena of Light and Sight" to be disposed of at half published price, on account of covers being slightly soiled. This Book has received the highest recommendation from the Photographic Press and public, and contains a wealth of illustrations and information on Stereoscopic Photography. Usual price 3/6, price of slightly soiled copies 1/9, post free. Only the above number can be sold at this price.—From the MANAGER, the Stereoscopic Supply Stores, 34a, Castle Street, Salisbury.

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